

Operating and Installation
Instructions

Laboratory Glassware
Washer
G 7827 / G 7828

To prevent accidents
and machine damage
read these instructions

before
installation or use.



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IMPORTANT SAFETY INSTRUCTIONS

This machine conforms to current safety requirements. However, inappropriate use can lead to personal injury and property damage. Read the operating instructions carefully before using this machine.

The manufacturer cannot be held responsible for damage caused by non-observance of these Important Safety Instructions.

Use

■ This machine is designed for commercial use and for specialized applications only, as described in these Operating Instructions. Do not use for purposes other than those for which it was designed, as this could be dangerous. Miele is not responsible for damages caused by improper use.

■ The installation of this unit in non-stationary locations (e.g. ships) must be performed by a qualified installer or service agency in strict accordance with national and local safety regulations and standards.

Please pay attention to the following notes to maintain safe procedures.

■ The machine should be commissioned and maintained only by a Miele Service Technician. Repairs by unqualified persons could be dangerous.

■ Do not install the machine in an area where a danger of explosion or freezing may be present.

■ Be certain this appliance is properly installed and grounded by an authorized technician. To guarantee the electrical safety of this appliance, continuity must exist between the appliance and an effective grounding system. It is imperative that this basic safety requirement be met. If there is any doubt, have the electrical system checked by a qualified technician. The manufacturer cannot be held responsible for damage or injury caused by the lack, or inadequacy, of an effective grounding system (e.g. electric shock).

■ A damaged machine is dangerous. Turn off the machine immediately at the power switch and call the Miele Service Department.

■ Personnel operating the machine should be trained regularly. Children and untrained personnel must not be allowed access to the machine or its controls.

IMPORTANT SAFETY INSTRUCTIONS

Take care when handling liquids such as detergents, neutralizing agents, wetting agents and rinse aids. These may contain irritant or corrosive ingredients, acids or alkalis. Never use any organic solvents, as the danger of explosion exists. Wear protective gloves and goggles. The manufacturer's safety conditions must be observed at all times.

The water in the machine must not be used as drinking water.

Be careful when sorting items with sharp pointed ends. Position them in the machine so that you do not hurt yourself or create a danger for others.

When using this machine regard the high temperatures and be especially careful not to scald or burn yourself. When opening the door bypassing the electrical lock, a danger of burning, scalding and corrosion exist. Let mobile units, inserts and cleaned items cool before touching them. Any water which may remain in containers will be very hot and must be emptied into the wash cabinet.

After drying with the TA drying unit open the door to allow the items and inserts to cool.

Do not touch the heating elements (under the wide area filter) during or directly after the end of a program, you could burn yourself. They remain hot for some time after the program end.

If the boiler has been programmed to "BOILER READY", be particularly careful of hot water and steam when opening the door. Danger of burning or scalding. The water inlet pipe to the wash cabinet is located, as viewed from the unclean side, underneath the basket runner on the left hand side.

Steam heating is permissible up to a pressure of 145 psi. This corresponds to a water steam temperature of 354°F (179 °C).

Never clean the machine near or with a water or high pressure hose.

Before servicing, disconnect the power supply by either removing the fuse, unplugging the unit or manually "tripping" the circuit breaker.



Mount on non-combustible floors only!

IMPORTANT SAFETY INSTRUCTIONS

The following points should be observed to assist in maintaining quality standards, for critical lab glassware, to protect patients, and to avoid damage to the loads being cleaned.

■ Use only Miele approved cleaning agents with this machine. Use of unsuitable cleaning agents could adversely affect the components of the machine. Damages resulting from using unsuitable cleaning agents are not covered by the warranty.

■ Pre-treating (e.g. with cleaning agents), certain soiling and cleaning agents with a chemical interaction, can cause foam. For pre-treatment and/or cleaning only use low-sudsing detergents which have been approved by Miele. Suds can have an adverse effect on the operation of the machine.

■ After START has been pressed the program must not be interrupted by pressing the I-0 button. A program should not be interrupted since the result may be effected. Otherwise the program must be repeated.

■ When a chemical additive is recommended, the manufacturer of the machine takes no responsibility for the effect of the chemical on the items being cleaned.

■ The machine must only be operated with water and the recommended cleaning agents. Organic solvents must not be used in the machine as there is the danger, under certain circumstances, of explosion and damage to rubber and synthetic materials. Follow the dosage recommendations of the cleaning agent's manufacturer.

■ In critical applications where very high requirements have to be met, it is strongly recommended that all the relevant factors for the process, such as cleaning agent, quality of water, etc. are discussed with the Miele Applications Specialists.

■ If the cleaning result is subject to particularly stringent requirements (e.g. chemical analysis, specialized processes), a regular quality control test should be carried out by the user to ensure that the required standards of cleanliness are being achieved.

■ The cleaning standard in the routine use must be verified by the user. The process should be checked regularly using thermoelectric and documented results.

IMPORTANT SAFETY INSTRUCTIONS

■ The mobile units and special inserts should only be used for their specific application.

■ Empty any containers or utensils before arranging them in the machine.

■ Do not allow any remains of acids, solvents or corroding ferrous material, and in particular hydrochloric acid or chloride solutions to get into the wash cabinet. Similarly avoid any materials with a corrosive effect. The presence in compounds of any solvents should be minimal, (especially those in hazard class A1).

■ To avoid any corrosion damage ensure that solutions or steam containing hydrochloric acid do not come in contact with the stainless steel casing of the machine.

■ Please follow the installation advice in these instructions and the separate Installation Instructions.

Using accessories

■ Only specific additional equipment made by Miele should be connected to this machine. Consult a Miele Application Specialist on the type and application of such equipment.

■ Only Miele mobile units, modules and inserts should be used. If equipment from another manufacturer is used, Miele cannot ensure the cleaning and disinfection results. Damage or injury caused by this are excluded from the warranty.

Disposal of an old appliance

■ When discarding a lab washer, disconnect it from the power supply and cut off the power cord. The old appliance may be contaminated by blood or other body fluids and must be disinfected before disposal.

For environmental and safety reasons ensure the machine is completely drained of any residual water and cleaning agent. (Observe safety regulations and wear safety goggles and gloves). Make the door lock inoperative or remove the door completely, so that children cannot accidentally shut themselves in. Make appropriate arrangements for the safe disposal of the machine.

Machines with a tank system: remove the water from the tank before disposing the machine.

SAVE THESE INSTRUCTIONS

Description of the machine

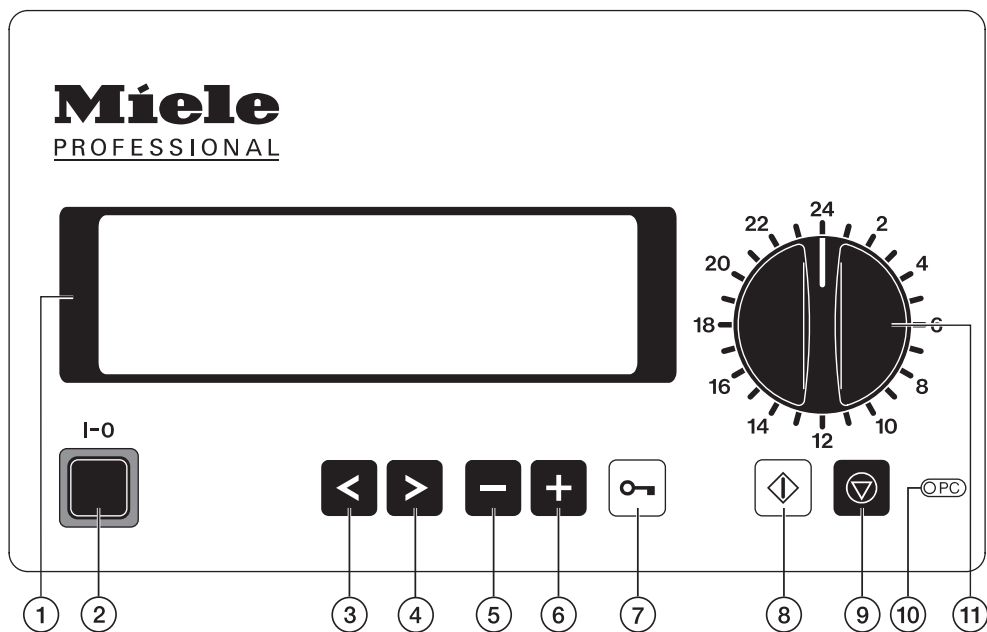
The Miele G 7827/G 7828 Large Capacity Glassware Washer is designed for high-throughput, centralized wash areas. This unit is ideal for cleaning both large volumes of small items, and difficult to clean large items.

Optional peripheric machines

- Drying unit (TA)
- Steam condensor (DK)
- Report printer (PRT)

Description of the machine

Electronic controls



Description of the machine

① Display

with screen saver

The background light turns off automatically after 15 minutes.

- Press any key to turn the background light on again.

② On/Off button (I-O)

③ Cursor left ◀

moves the cursor to the left:

- to the previous menu
- to the previous parameter
- to the previous input position

④ Cursor right ▶

moves the cursor to the right:

- to the next menu
- to the next parameter
- to the next input position

⑤ Minus button -

- program selection for programs over 24
- scrolling back pagewise in menus
- entering numbers and letters
- changing default settings, e.g. service parameter

⑥ Plus button +

- program selection for programs over 24
- scrolling forward pagewise in menus
- entering numbers and letters
- changing default settings, e.g. service parameter

⑦ Door button

⑧ Start button

- Starting a program
- Activating insert mode
- Confirming settings
- Confirming menu points, to get to the respective submenu

⑨ Stop button

- Canceling a program
- Leaving the input screen without saving
- Leaving a menu

⑩ Optical interface

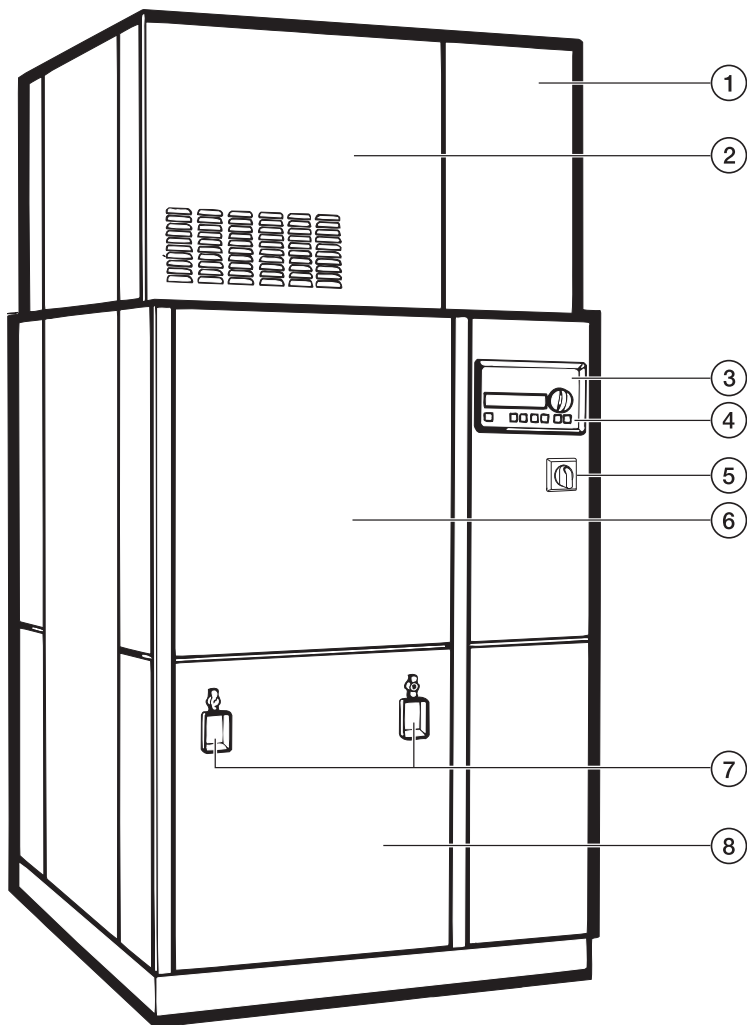
(for service technician)

⑪ Program selector

Selecting programs 1-23

Description of the machine

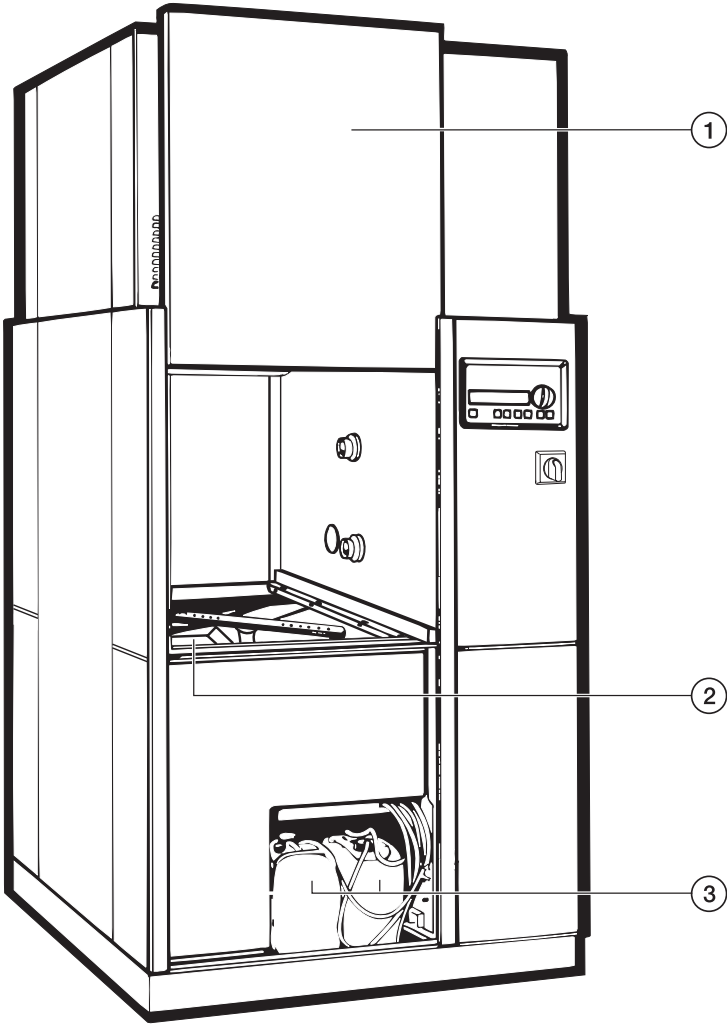
Unclean side



- ① Drying unit (TA)
- ② Steam condensor (DK)
behind top housing (Optional)
- ③ Electronic circuit board "Profitronic"
(see "Programming manual")
- ④ Controls
- ⑤ Power switch (with "Emergency
cut-off" function for Service)
- ⑥ Lift door (closed)
- ⑦ Adapter for the "Miele transfer" cart
- ⑧ Service panel

Description of the machine

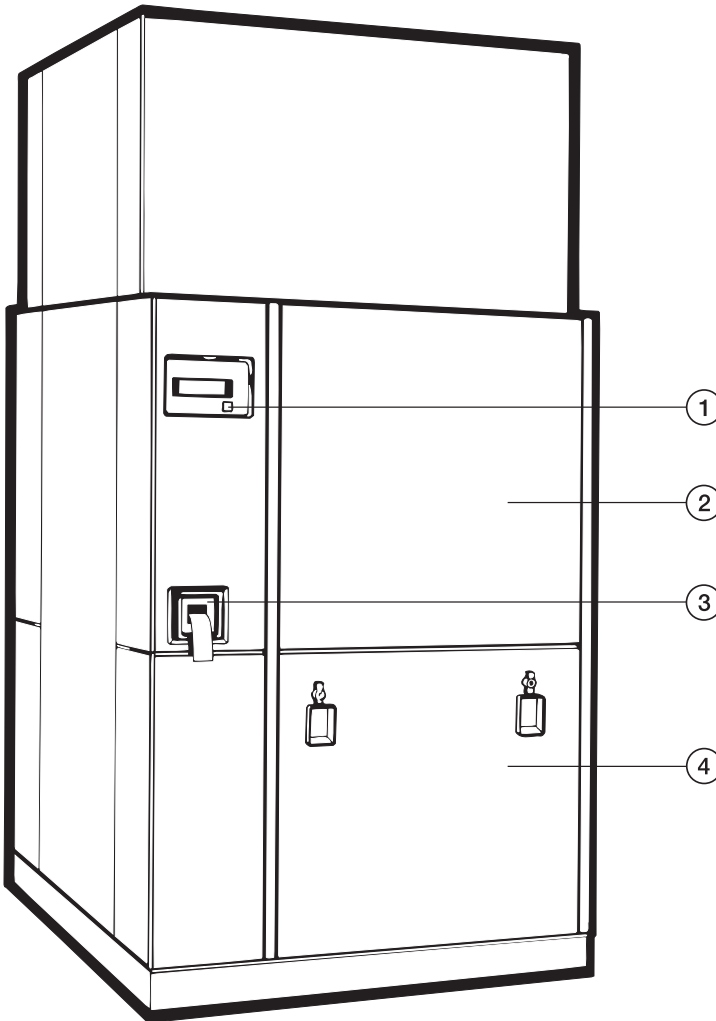
Unclean side



- ① Lift door (open)
- ② Filter combination
- ③ Containers for dosage system DOS 1 - DOS 4

Description of the machine

Clean side (G 7828 only)



- ① "Door" button
- ② Lift door (closed)
- ③ Printer (optional)
G 7827 on the unclean side
- ④ Service panel
with adapter for "Miele transfer" cart

Opening and closing the lift door

The lift door can only be opened when:

- the lab glassware washer is connected to the electrical supply,
- the red ("emergency cut off") switch is in the **I-ON** position,
- the **I-0** On-Off button is pressed in, and
- no program is running.

The lift door on the **clean side** (G 7828) can only be opened when:


- DESIN (disinfection) programs have been correctly completed,

or

- the Door interlock has been activated, i.e. DOOR MECH. has been set to one of the following parameters:
 - INTERLOCK,
 - DOOR CLEAN+INTERLOCK,
 - DOOR UNCL.+INT.LOCK.(see "Machine function - Door mechanism..." in the Programming manual).


To open the lift door

- Press the  door button. The lift door rises.

 Do not touch the heating elements (under the wide area filter) during or directly after the end of a program, you could burn yourself.

If the boiler has been programmed to "BOILER READY", be particularly careful of hot water and steam when opening the door. Danger of burning or scalding. The water inlet pipe to the wash cabinet is located, as viewed from the unclean side, underneath the basket runner on the left hand side.

To close the lift door

- Press the  door button. The lift door lowers.

Automatic mobile unit recognition (AWK)


In operating level C the AWK (optional) attributes a fixed program place to a mobile unit with valid coding. Program places 1-15 are reserved for the AWK automatic mobile unit recognition.

The unit coding (on the mobile unit) and the program place with the corresponding program (in the "Profitronic" electronic control unit) must match.

- Each mobile unit must be coded before being used for the first time. See "Mobile unit coding".
- The wash program through which the mobile unit is coded has to be assigned to the relevant program place.

Program place changes, see the "System function - Selector switch organization" section in the Programming Manual.

Important!

Before starting the program with the "Start" button , check that the program needed for this mobile unit is displayed.

Otherwise insufficient wash results may occur!

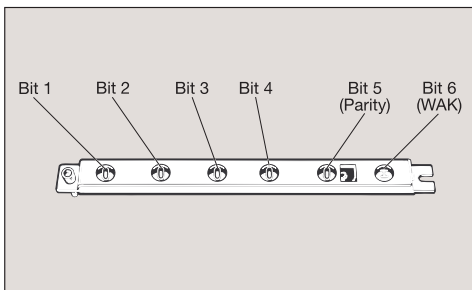
Always check that programs for mobile units with AWK (on fixed program places) are not exchanged.

Mobile unit coding

The automatic mobile unit recognition feature assigns a program place to a mobile unit. The mobile units must be coded with a magnetic strip, via a bit combination. In operating level C the only program available for a coded mobile unit is the one assigned to the corresponding program place.

When a coded mobile unit is inserted in the machine and the door closes, the automatic mobile unit recognition selects the assigned program. Be sure no small items connect to the magnetic strip.

- Press  to start the program.



The coding is made up of 5 bits:

- Bits 1 to 4 define the mobile unit code,
- Bit 5 serves as a control (Parity-Bit).

Bit 6 controls the volume of water intake and the circulation pump for mobile units with side coupling. This setting cannot be changed!

Mobile units without side coupling are coded with tracks which do not contain Bit 6!

Automatic mobile unit recognition (AWK)

Mobile unit coding strip

15 different codes can be set. They are assigned to program places 1 to 15.

Under "System function - Selector switch organization" the matching programs have to be put into the first 15 program places.

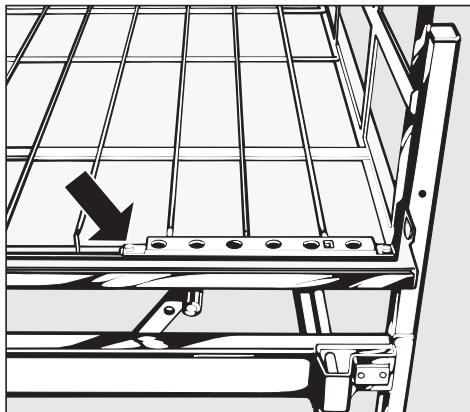
Prog.-place	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5 Parity-Bit
-	0	0	0	0	0
1	1	0	0	0	1
2	0	1	0	0	1
3	1	1	0	0	0
4	0	0	1	0	1
5	1	0	1	0	0
6	0	1	1	0	0
7	1	1	1	0	1
8	0	0	0	1	1
9	1	0	0	1	0
10	0	1	0	1	0
11	1	1	0	1	1
12	0	0	1	1	0
13	1	0	1	1	1
14	0	1	1	1	1
15	1	1	1	1	0

The coded total must be an even number. Bit 6 is not included in this calculation.

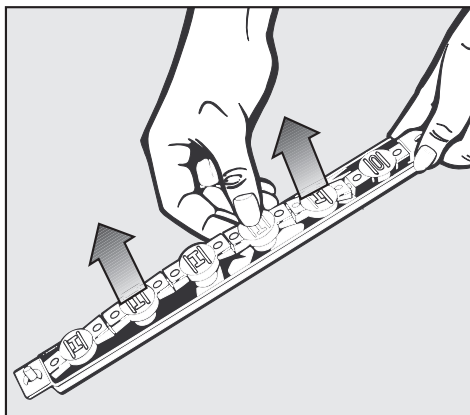
If the coded total equals an odd number the message CHECK MOBILE UNIT RECOGNITION will appear. If the mobile unit code equals 0, the message NO MOBILE UNIT RECOGNITION will appear. In both cases the program cannot be started. The mobile unit recognition must be reset.

Setting mobile unit coding

To set or alter the coding of a mobile unit with automatic recognition (AWK) proceed as follows:

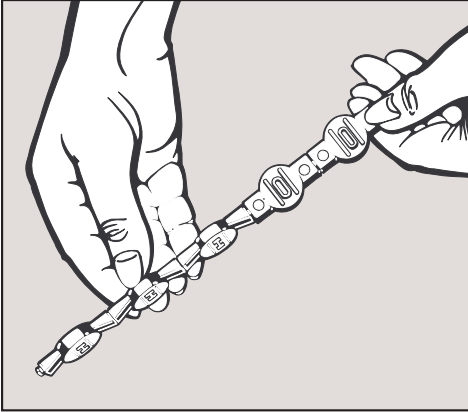


- Unscrew the track with an AWK (allen wrench) and remove it from the retainer.

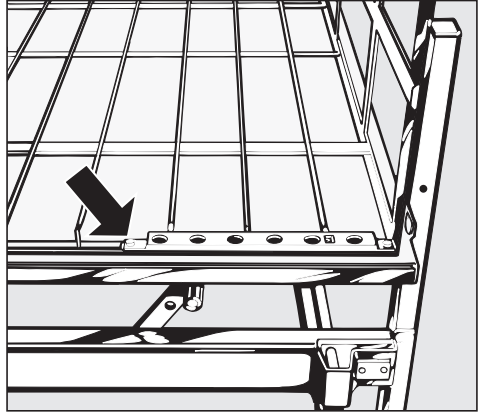


- Remove the magnetic strip from the track.

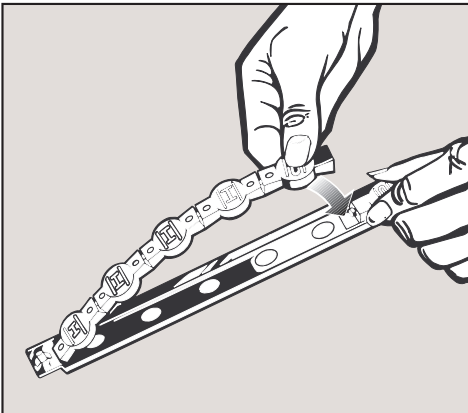
Automatic mobile unit recognition (AWK)



- Set the program place coding.



- Place the track in the holder of the mobile unit and screw firmly in place.



- Put the magnetic strip back in the track.

Important:

The magnetic strip must be placed in the track so that the Bit coding, set according to the chart, is visible through the round windows of the track.

Bit 6 is not an integral part of the modifiable magnetic strip. Make sure that you code mobile units with side coupling to a track where Bit 6 is set to I. Mobile units without side coupling must be coded with a track that does not have Bit 6.

The magnetic strips on the G 7825 / G 7826 must have **gray** magnets. The magnetic strips on the G 7827 / G 7828 must have **black** magnets.

The machine can be fitted with a variety of mobile units, baskets and inserts, depending on the cleaning application desired.

Check before cleaning

- Are the items to clean correctly sorted, loaded and connected?
- Are the spray arms clean and can they rotate freely?
- Is the filter combination free of coarse soiling? Clean if necessary.
- Is the adapter to the water inlet in place? The spray arms correctly connected?
- Are the detergent and neutralizer containers full?

Check after cleaning

- Check the cleaning results visually.
- Perform protein analytical checks, e.g. with the Miele test kit.
- Are the jets and connections securely connected with the mobile unit / inserts?

Application

Loading tips

Select mobile units, baskets and inserts appropriate for the application.

- Load the items to be washed so that water can access all surfaces. This ensures that they will be properly cleaned.
- Do not place items to be cleaned inside other pieces where they may be concealed.
- Hollow vessels such as beakers, measuring cylinders, flasks, etc. should be inverted and placed in the correct inserts so that water can flow in and out unrestricted. A cover net can be used to reduce the risk of movement during the wash process.
- Use a cover net (e.g. an A 2) or mesh tray to secure small and/or lightweight items to prevent them from blocking the spray arms or being caught in the magnetic strip on the automatic mobile unit recognition system.
- Deep based items should be placed at an angle to allow water to run off easily.
- Tall, narrow pieces should be placed in the center of the baskets. This ensures good water coverage.
- Mobile units with an adapter must engage correctly.
- Engage inserts correctly into the module carts.
- The spray arms must not be blocked by tall items or items which hang down in their path. If necessary, manually rotate the arms to test.
- Petri dishes and the similar should be placed in the correct insert with the soiled side facing the center.
- Insert pipettes with the pointed end downwards.
- Quarter inserts should be placed as close to the middle of the unit as possible.
- Glassware should not stick out of the door area.

Laboratory glassware (LG)

Wide-necked glassware, such as wide necked erlenmeyer flasks and petri dishes or glassware with a cylindrical form, e.g. test tubes, can be cleaned inside and out with the rotating spray arm. General glassware such as beakers, conical flasks, petri dishes, test tubes, etc. can be arranged in full size, half or quarter inserts in the higher or lower levels.

Mobile injector units are available for direct injection spraying of narrow necked flasks, pipettes, etc.

The following instructions relate only to basic preparation and loading of glassware.

Loading the machine

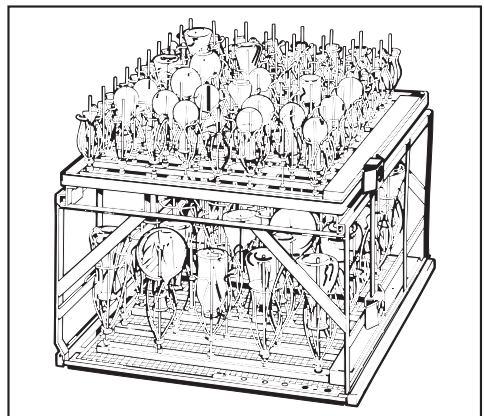
Removing excess soils

- Empty all glassware before loading into the machine. Take any hygienic measures necessary to avoid infection.

⚠ Ensure that no acid or solvent residues, especially hydrochloric acid or chlorides get into the wash cabinet.


- Remove all agar residues from petri dishes.
- Remove blood clots and residues from test tubes, etc.
- Remove all stoppers, corks, labels, sealing wax residues, etc.
- Small parts such as stoppers and taps should be secured in suitable basket inserts.

E 940 Injector mobile unit



Contains two levels, for narrow necked laboratory glassware (can also be used without the upper level).

Adding liquid detergents and neutralizers

 Use only cleaning detergents and neutralizers specially designed for lab washers and regard the application recommendations of the manufacturer.

This automatic cleaning machine is fitted with 4 dispensers:

- Dispensing system DOS 1 (blue) to dispense liquid detergent. The dosing rate is 200 ml/min.
- Dispensing system DOS 2 (white). The dosing rate is 105 ml/min.
- Dispensing system DOS 3 (red). The dosing rate is 105 ml/min.
- Dispensing system DOS 4 (green). The dosing rate is 465 ml/min.


The amounts of cleaning agent required, depending on the application chosen for this machine, are dispensed through these dispensing systems.

Preparing the DOS dispensers

The liquids can be filled into 10 l plastic containers, which are color coded for the corresponding dispensing system.

When first commissioning, or when the message "FILL DOS 1 CONTAINER" and/or DOS 2, 3, 4 flashes in the display after switching on or at the end of a program, fill the storage container with the correct detergent or neutralizer. If the message "CHECK DISPENSING SYSTEM 1" and/or "DISPENSING SYSTEM 4" flashes in the display, (the program has been automatically put on hold), check the storage container and dispensing hoses, refill if necessary.

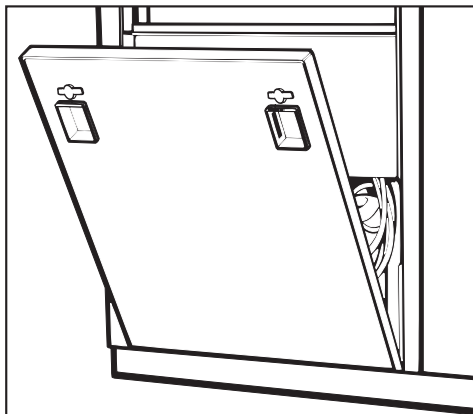
When first commissioning or when the message "CHECK DISPENSING SYSTEM..." appears, start the DOS-FILL program to prime the dispensing system (see "Priming the liquid dispensing systems").

 Use caution when handling detergents!
Follow the instructions and relevant safety procedures carefully.
Wear protective gloves and goggles.

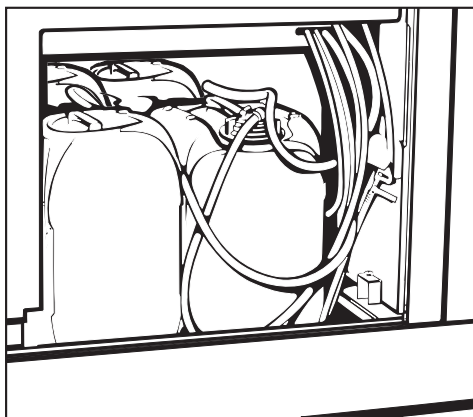
Adding liquid detergents and neutralizers

Filling the containers with liquid agents

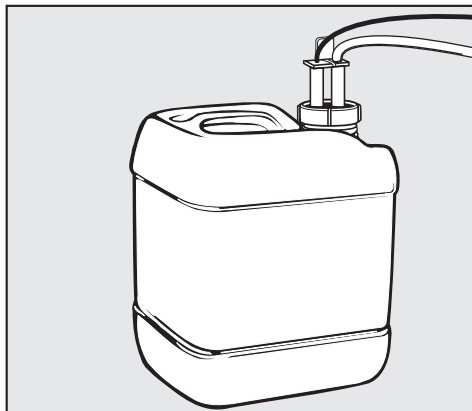
- Turn the machine off using the power switch.



- Open the service panel and lift it up and out at the bottom.



- Take the storage container out of the unit, open it and fill with the agent required (observe the color code).



- Place the siphon tube from the detergent dispensing pump firmly into the container opening (observe the color code).

Once the storage containers have been filled the message clears.


Remember to refill the containers in a timely manner, they should not be emptied completely.

If the container is not in use, the refill function for the dosage system not used can be shut off and a respective display message be avoided (see "Machine function/Dispensing - Query container" in the Programming manual).

Adding liquid detergents and neutralizers

Priming the liquid dispensing systems

Before the machine is first used, and later if one or more containers have been allowed to empty, the dispensing system(s) for liquid agents must be primed.

- Press the ON/OFF **I-O** button.
- Select operating level "B".
- Select from the following as required:
 - Program DOS1-FILL
 - Program DOS2-FILL
 - Program DOS3-FILL
 - Program DOS4-FILL.
- Press the "Start"  button.

The DOS-FILL Service Programs were allocated by default to program places 58-61, but they can also be allocated to other program places.

Dispensing system maintenance

To ensure safe function, the following maintenance should be carried out by a Miele Service Technician at specified intervals.

Every 12-18 months:

Inspect the hoses of the dispensing system(s). Replace if necessary.

External Dispensing systems

If external pumps are to be used for dispensing liquid detergent, please inform the Miele Technical Service Department. The notes in the Programming Manual under "Machine functions" must be observed.

Turning on

- Open the water supply (if turned off).
- Turn the power switch to **I-On**.
- Press the ON/OFF **I-0** button in.

In operating levels A, B and D the most recently selected PROGRAM NAME appears and in operating level C "AUTOMATIC MOBILE UNIT RECOGNITION" is displayed.

The four operating levels are:

A = Fixed program / Programs with free access

B = Free program selection

C = AWK – Automatic Mobile Unit recognition (program selection via mobile unit coding)

D = Programming / free program selection / change code (see the Programming manual)

Changing the operating level

- Press **<** and **>** at the same time. Operating levels A B C D will appear in the display.
- Select the operating level you want using the **<** or **>** keys.
- Press **⏏** to confirm selection.
- Enter code when requested in the display.

The code is set by default to >0000<.

- Press the "Start" button **⏏**.

[0000] appears.

- Enter numbers using the **+** and **-** keys.
- Select number positions with the **<** or **>** keys.
- To confirm code press **⏏**.

If it was entered incorrectly: FALSE CODE, ENTER AGAIN will appear in the display.

- Close the door.

Selecting or changing your own code

The factory set code can be changed (see "System function" in the Programming Manual).

Code 1 for levels ABC

Code 2 for levels ABCD


Operation

Starting a program

You can find detailed and important information regarding the Miele default programs in the program chart of the supplied Programming Manual.

A. Fixed program

To utilize access level "A", fixed programs must be assigned for access. See the Programming Manual section on "System Functions" for details on assigning programs. Once programs are assigned to access level "A" they can be operated in the following manner.

- Select operating level "A".
- Check in the display that the program shown is the one required. If several fixed programs have been made freely accessible, select the one required using the program selector.
- Press the "Start"  button.

B. Free program selection



- Select operating level "B".

With operating level "B" there are three possibilities for program selection.






1. Program places 1 - 23 can be selected using the Program selector.

- Turn the program selector to the required program.
The program name appears in the display.

2. Programs above place 24 can be selected using the  and  keys.


- Turn the program selector to 24.
- Press  (scrolls upwards) or  (scrolls down), until the required program is shown.

3. The PROGRAM SURVEY menu lists all stored programs. A program can be selected from this menu.

- Select Program Survey with  and confirm with .
- Select a program using  or .
- Press  to confirm the selection.

This exits the Program Survey, and the selected program is shown in the display.

After selecting one of the three options above:

- Press the "Start"  button, the program proceeds.

For further information on program selection see "Operating Level B" in the Programming Manual.

C. Automatic mobile unit recognition (AWK)

- Select operating level "C".
- Push the coded mobile unit into place.

Make sure that no small metallic items (e.g. keys) stick to the magnetic strip or its underside. The coding might be not readable.

- Close the door.

Important:

It is absolutely essential to check that the program required for this mobile unit is the one shown in the display, before starting the program by pressing the "Start" button. Otherwise inadequate cleaning could result.

Please make sure, that the places assigned for programs using the AWK (Automatic mobile unit recognition) are not changed at random.

- Press the "Start"  button.

Document any program and dosage changes. Cleaning performance must be validated again if necessary.

Program sequence

After being started the program will proceed automatically. It is finished when PROGRAM END appears in the display and the background lighting flashes (press any button to switch off the flashing lights).

The flashing lights can be permanently switched off. See "System Functions" in the Programming Manual.

Detailed information on program sequences is given in the appendix of the Programming Manual.

The display background lighting goes out automatically after approximately 15 mins. To bring it back on again press one of the buttons.

Do not change the printer paper roll and cartridge during a running program.

Turning off

- Press in and release the ON-OFF, **I-0**, button.
- Turn off the water supply.

Operation

Cancelling a program

A program can only be interrupted or cancelled in the operating levels B or D.

In operating levels B or D

- Press the "Stop"  button.

The program is interrupted.
>CANCEL< OR >CONTINUE< appears in the display.

- Select >CANCEL< with the  button.
The cursor > < flashes.

- Press the "Start"  button.

The program is cancelled and the water is drained. DRAIN WATER appears in the display.

- After the water has been drained the required program can be selected and restarted.

Interrupting a program

A program can only be interrupted or cancelled in operating levels B or D.

If the door needs to be opened in extreme cases, e.g. if items are moving:

In operating levels B or D

- Press the "Stop"  button.

The program is interrupted.
>CANCEL< OR >CONTINUE< appears in the display.

- Open the door.


Important G 7828:


Which door can be opened will depend on what setting has been programmed under MACHINE FUNCTION / DOOR MECH. (see the Programming manual).

The door on the unclean side can always be opened, no matter which parameter has been set.

The door on the clean side can only be opened if one of the following parameters are set:

- INTERLOCK,
- DOOR CLEAN+INTERLOCK,
- DOOR UNCLN.+INT.LOCK.

 Caution! Water and items in the machine may be hot. There is a danger of burning or scalding.

- Arrange the parts securely, observe any protective measures.
- Close the door.
- Press the "Start"  button.

The program continues.

Serial interface

Each machine is supplied with a 16' 5" (5 m) long interface cable for data transfer between the Profitronic system and an external report printer or PC.

The interface cable is rolled up inside the machine and must only be connected by a Miele Service Technician.

The serial interface is RS 232 compatible.

Various printers can be used as external printers:

- Epson-compatible sign-set
- HP Laserjet

For the interface configurations see "PC/Printer Function" in the Programming Manual.

The address of the 9-pole pin sub-D plug of the serial interface cable:

- 5GND (ground)
- 3TXD (transmit)
- 2RXD (receive)
- 1-4-6 (linked)
- 7-8 (linked)

A standard null-modem or laplink cable can be connected.

The extension cable to the printer/PC must not exceed 32' 9" (10 m).

Please note the following when connecting a printer or PC:

- Only use an industry-standard PC or printer.
- When installing the machine take the dimensions of the printer/PC into account.

The printer settings are described in the chapter PC/Printer function in the Programming manual.

The report printer offers the following print options:

- Program print
- Additional functions print
- Rinse protocol print
- Fault protocol print

Maintenance and care

It is recommended that periodical maintenance for this washer be carried out by Miele's Technical Service Department after 1000 operating hours or every 6 months.

Maintenance covers the following:

- Electric safety
- Door mechanism and door seal
- Screws and connections in the wash cabinet
- Water inlet and drain
- Internal and external dispensing systems
- Spray arms
- Triple Filter System
- Drain pump and non-return valve
- Steam condenser
- All mobile units, baskets and inserts

If available:

- Drying unit
- Connected printer

A function check is done with the following:

- a program is run as a test
- ensure proper wash temperatures
- ensure a water tight door seal
- all safety relevant measure systems (Display of faults).

Maintenance

Process validation

The standard of cleaning processes must be ensured by the user as a routine matter.

Routine checks

The routine checks must be done daily by the user before using the machine. A checklist is supplied with the washer.


Check the following points:

- the filters in the base of the wash cabinet,
- the spray arms in the machine and at the mobile units and inserts,
- the wash cabinet and the door seal, and
- the mobile units, baskets and inserts.

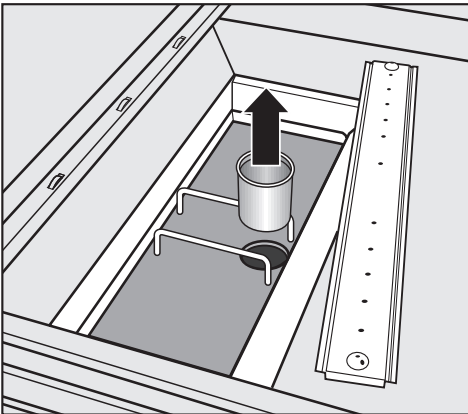
Cleaning the filters in the wash cabinet

The filter combination in the base of the wash cabinet should be inspected regularly and cleaned if necessary.

 The machine must not be used without all the filters in place.

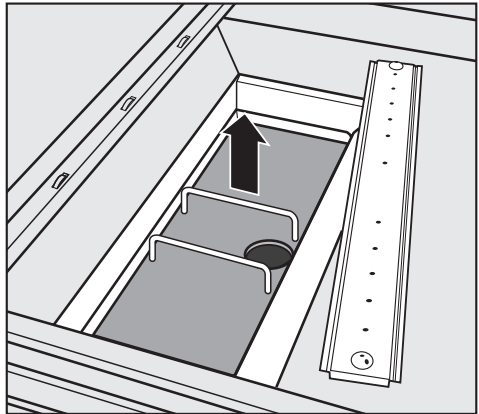
 Be aware of glass splinters, danger of injury.

Cleaning the fine filter



- Remove the fine filter and clean if necessary.

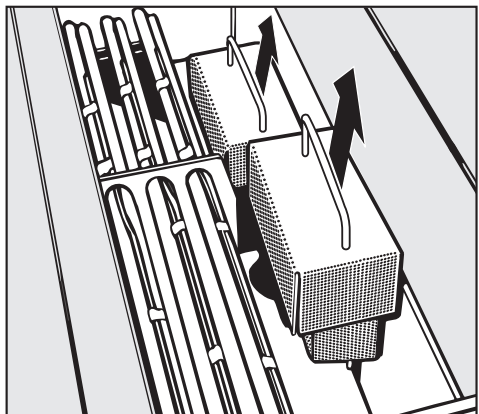
Cleaning the flat filter



- Remove the flat filter and clean if necessary.

Cleaning the filter system of the circulation pump

Two filters are situated under the flat filter (on the right, next to the heater block) to protect the circulation pump.



- Pull the filters up and out of the holder to remove. Clean if necessary.
- Replace the filter combination in the reverse order.

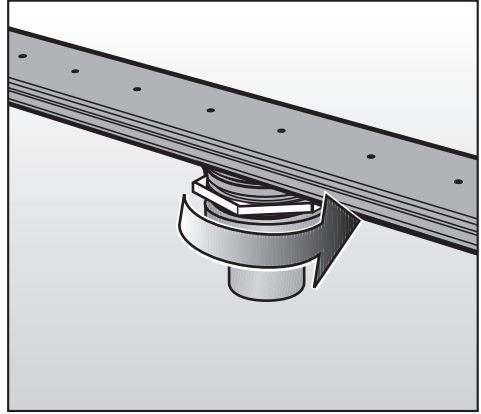
Maintenance

Cleaning the spray arms

The spray arm jets can get clogged. Check daily and clean if necessary.

- Use a sharp pointed object to push particles into the spray arm jets and rinse thoroughly under running water.
- Remove the mobile unit.

Labwasher spray arms



- Loosen the nut with a 60 mm wrench and pull the spray arm upwards or downwards respectively.


Mobile unit / insert spray arms

- Turn the nut with the spray arm counterclockwise and pull the spray arm downwards.
- Refit the spray arms after cleaning in the reverse order.

After replacing the spray arms check that they rotate freely.


Cleaning the control panel

- Clean the control panel with a damp cloth or with a glass/plastic cleaner. To disinfect use an approved cleaning agent.

 Do not use abrasive or all purpose cleaners! They will damage the surface.

Cleaning the exterior

- Stainless steel surfaces can be cleaned using a non-abrasive stainless steel cleaner or with dishsoap and warm water.
- To help prevent resoiling, a conditioner for stainless steel can also be used. Apply sparingly and with even pressure.

 Do not use thinner or ammonium cleaner. They will damage the surface.

Cleaning the wash cabinet

The wash cabinet is mostly self cleaning.

If deposits have built, call Miele for info.

Cleaning the door seal

- To remove soiling clean the door seal regularly with a damp cloth.
- Damaged or leaking door seals should be replaced by Miele's Technical Service Dept.

Maintenance

Mobile units, baskets and inserts

To ensure the proper function of mobile units, baskets and inserts, they must be checked daily. A checklist is supplied with the machine.

Check the following points:

- Are the rollers in the proper condition and are they securely fixed in the mobile unit/insert?
- Is the mobile unit connection correctly set and tightly screwed on?
- Are all spray jets, spray sleeves and hose adapters tightly connected with the mobile unit/insert?
- Are all spray jets, spray sleeves and hose adapters unclogged so that the wash water can flow through?
- Are covers and fasteners tightly screwed on the spray sleeves?

If available:

- Do the spray arms rotate freely?
- Are the spray jets clogged? See "Cleaning and Care / Cleaning the spray arms".
- Are the screws in the rail of the Automatic mobile unit recognition tightly screwed on?

Report printer (Option)

Replacing the print paper


Replace the print paper, 2 1/4" (58 mm) wide, when the red indicator lights in the report printer.

- Open and pull down the front panel of the printer.
- Take the empty roll together with its spindle from the roll holder, fit the new roll on the spindle and put it back in place.
- Cut the paper at an angle and guide it up and over the paper transport roller (slit behind the ribbon cartridge). Press the green paper transport button until the paper reemerges above the ribbon cartridge (see the illustration on the inside of the front panel).
- Guide the paper through the slit of the front panel. Shut the front panel.

Replacement paper rolls, 2 1/4" (58 mm) wide, outer diameter approx. 2" (50 mm) can be obtained from Miele.

Replacing the ribbon cartridge

- Open and pull down the printers front panel.
- Pull the ribbon cartridge (above the paper roll) forward and out of its holder and replace it with a new one. The paper must be guided between the ribbon and the cartridge housing.
- Turn the small wheel for manual ribbon transport on the right clockwise until the ribbon is tight.
- Cut the paper at an angle and guide it through the slit of the front panel. Shut the front panel.

 Please refer to the installation diagram supplied with the machine.

Replacement ribbon cartridges can be obtained from Miele.

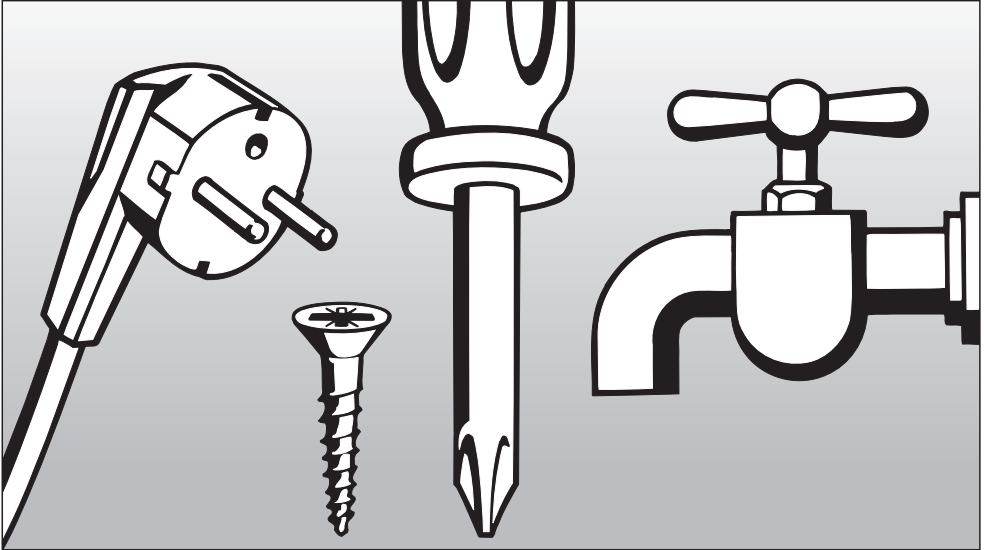
After sales service

Should you have any difficulties please contact the Miele Technical Service Department.

See back cover for contact information.

- Please quote the model and serial number of your machine.

This information can be found on the data plate (see also "Electrical connection").






INSTALLATION INSTRUCTIONS

Installation

Steam/Electro or Electro/Steam conversion

If the machine is convertible, the heating type can be changed in the service program from STEAM>>ELECTRO to/from ELECTRO>>STEAM.

- Select program STEAM>>ELECTRO or ELECTRO>>STEAM (see "Operation - B. Free program selection").
- Press the "Start"  button. When the service program has ended, a message appears in the display.
- Confirm the instruction >CONTINUE< with .

 Mount on a non-combustible floor only!

All electrical work must be carried out by a qualified electrician in accordance with local and national safety regulations.

- Installation, repairs and other work by unqualified persons could be dangerous. The manufacturer can not be held responsible for unauthorized work.
- For technical data see the data plate or wiring diagram supplied.

The machine must only be operated with the voltage, frequency and fusing shown on the data plate.

The data plate is on the cover plate behind the service panel of the unclean side.

The wiring diagram is secured to the inner side of the service panel.

This unit is convertible for use with steam or electric heating.

Hook up requirements are as follows:

1. Electric heat only:
208 V 3 phase 60 HZ 60 amp
2. Steam heat only:
without drying option
208 V 3 phase 60 HZ 20 amp
with drying option
208 V 3 phase 60 HZ 30 amp

WARNING:
THIS APPLIANCE MUST BE GROUNDED

Plumbing

Water connection

This machine must be connected to the water supply in accordance with all national and local plumbing codes.

 **Water in the machine is not suitable for drinking.**

The washer is constructed so that it may be connected to a water supply without an extra non-return valve, unless required by code.

Faucets and drain connections should be situated as close to the machine as possible, and be easily accessible.

Water supply pressure

Hot + Cold water connection =
min. 22 psi - max. 145 psi
DI water connection =
min. 9 psi - max. 145 psi


Recommended water pressure

Hot + Cold water connection =
over 37 psi - max. 145 psi
DI water connection =
over 22 psi - max. 145 psi
to avoid long intake times

The machine cannot be operated with an inflow pressure of less than 10 psi.

The machine is supplied with 3 connection hoses 5 ft. (1.5 m) long with $\frac{3}{4}$ " (19 mm) female hose thread ends.

Large area filters, supplied with the machine, are to be installed in the hose attached to the water supply. See "Cleaning and Care - Cleaning the water inlet filters".

 **Do not shorten or damage the hoses!**
Do not remove the filters in the hoses.

Requirements

(refer to the Installation Diagram for more information)

1. Cold water connection

One $\frac{1}{2}$ " (13 mm) cold water supply line with a standard $\frac{3}{4}$ " (19 mm) male hose thread faucet is needed. The cold water supply hose is marked with blue tape.

2. Hot water connection


One $\frac{1}{2}$ " (13 mm) hot water supply line with a standard $\frac{3}{4}$ " male hose thread faucet is needed. The water temperature must not exceed 158°F / 70°C (recommended: 140°F / 60°C). The hot water supply hose is marked with red tape.

If no hot water line is available, the red marked hose must be connected to the cold water line.

3. DI water connection

One $\frac{1}{2}$ " (13 mm) deionized water supply line with a standard $\frac{3}{4}$ " (19 mm) male hose thread faucet is needed. The machine cannot be operated conventionally with a flow pressure of less than 10 psi. In this case the installation of an optional DI pump is required. The DI water supply hose is marked with green tape.

If the water pressure is below 29 psi, the intake time will increase.

 If the machine will not be connected to DI water, the cleaning and disinfection programs must be changed by Miele Technical Service. The intake hose stays at the rear of the machine.

DI water connection (pressureless) 1.25 - 9 psi (optional)

For connection to 1.25 - 9 psi water pressure the machine must be converted if it was not ordered from the factory as a special model. A feed pump must be installed by Miele's Technical Service Dept.

The discharge nipple of the DI water container (pressureless) must be at least at the same height as the machine's upper edge (see the "Installation Manual").

Technical Data

Height:	98 $\frac{7}{16}$ " (250 cm) (minimum room height)
Width:	45 $\frac{1}{4}$ " (115 cm)
Depth:	34 $\frac{1}{4}$ " (87 cm)
Weight (net):	approx. 1,210 lbs (550 kg)
Operating weight	approx. 1,760 lbs (800 kg)
Voltage:	
Electric Heat	208 V 3 phase 60 HZ 60 amp
Steam Heat	
(without drying option)	208 V 3 phase 60 HZ 20 amp
(with drying option)	208 V 3 phase 60 HZ 30 amp
Rated loading:	21 KW
Air pressure requirements:	85 psi (required for steam operation)
Steam connection	
(with Electric TA):	36 - 145 psi / 284 - 356 °F (140 - 185 °C)
(with Steam TA):	36 - 87 psi / 284 - 327 °F (140 - 164 °C)
Water pressure	
(flow rate):	30 - 145 psi
Cold, hot and	
de-ionized water (DI):	up to max. 158 °F (70 °C)
Room temperature:	41 - 104 °F (5 - 40 °C)
Height above sea level:	up to 4921 feet (1500 m) ²⁾
Noise level in dB (A):	for the cleaning cycle under 70 for the drying cycle under 70
CE-mark:	MPG-Guidelines 93/42/EWG, Class IIa

¹⁾ A steam pressure of 36 - 43 psi a drying temperature of maximum 194 - 212 °F (90 - 100 °C) can be reached.

²⁾ When the machine is installed at a location over 4921 feet (1500 m) the boiling point of the wash water is decreased.

Disposal of the packing materials

The cardboard box and packing materials protect the appliance during shipping. They have been designed to be biodegradable and recyclable.

Ensure that any plastic wrappings, bags, etc. are disposed of safely and kept out of the reach of children.

Danger of suffocation! Please recycle.

Disposal of an old appliance

Old appliances may contain materials that can be recycled. Please contact your local authorities about recycling in your area.

Ensure that the appliance presents no danger to children while being stored for disposal. See "Important Safety Instructions".

**When contacting the Technical Service,
please quote the model and serial number
of your appliance.**



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